CLAIMS

1.   A computer system, comprising:

    a general purpose computer coupled to a relational database system characterized by at least one ternary vertical table, the computer including logic for undertaking method acts including:

    defining a logical horizontal view over the vertical table;

    receiving at least one SQL query against the horizontal view;

    transforming the query to render a transformed query; and

    executing the transformed query against the vertical table to generate an output.

2.   The system of Claim 1, wherein the query is transformed using at least one operator.

3.   The system of Claim 2, wherein the operator receives at least one vertical table with an associated list of attribute names as input and outputs the logical horizontal table having column labels equal to the attribute names.

4.   The system of Claim 3, wherein the operator is a v2h operator.

5.   The system of Claim 3, wherein the vertical table includes object identifications with corresponding attribute names and attribute values, and the operator executes a left outer join of a projection of distinct object identifiers of the vertical table with a sequence of left outer joins of a set of projections of attribute values from the vertical table.

6.   The system of Claim 1, wherein the transforming act undertaken by the computer includes executing at least one projection based on the vertical table.

7.   The system of Claim 1, wherein the transforming act undertaken by the computer includes executing at least one selection from the vertical table.

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8.   The system of Claim 1, wherein the transforming act undertaken by the computer includes executing at least one table join using the vertical table.

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9.   The system of Claim 1, wherein the transforming act undertaken by the computer includes executing at least one aggregation.

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10.   The system of Claim 5, wherein the transforming act undertaken by the computer includes executing the operator on the vertical table to render a result and then undertaking a desired set operation on the result.

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11.   The system of Claim 1, wherein the method acts undertaken by the computer include executing a horizontal to vertical operator against the output to transform the output to a vertical format.

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12.   A computer program device comprising:

a computer program storage device eadable by a digital processing apparatus; and

a program on the program storage device and including instructions executable by the digital processing apparatus for querying at least one vertical table in a database system, the program comprising:

computer readable code means for transforming a horizontal-based SQL query into a transformed query having a format for execution against at least one vertical table.

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13.   The computer program device of Claim 12, further comprising:

computer readable code means for defining a logical horizontal view over the vertical table;

computer readable code means for executing the transformed query against the vertical table to generate an output.

1   14.   The computer program device of Claim 13, wherein the means for transforming
2   includes at least relational one operator.

1   15.   The computer program device of Claim 14, wherein the operator receives at
2   least one vertical table with an associated list of attribute names as input and outputs the
3   logical horizontal table havrng column labels equal to the attribute names.

1   16.   The computer program device of Claim 15, wherein the operator is a v2h
2   operator.

1   17.   The computer program device of Claim 15, wherein the vertical table includes
2   object identifiers with corresponding attribute names and attribute values, and the operator
3   executes a left outer join of a projection of object identifiers of the vertical table with a
4   sequence of left outer joins of a set of projections of attribute values from the vertical table.

1   18.   The computer program device of Claim 12, wherein the means for transforming
2   includes means for executing at least one projection based on the vertical table.

1   19.   The computer program device of Claim 12, wherein the means for transforming
2   includes means for executing at least one selection from the vertical table.

1   20.   The computer program device of Claim 12, wherein the means for transforming
2   includes means for executing at least one table join using the vertical table.

1   21.   The computer program device of Claim 12, wherein the means for transforming
2   includes means for executing at least one aggregahon.

1   22.   The computer program device of Claim 17, wherein the means for transforming
2   includes means for executing the operator on the vertical table to render a result and then
3   undertaking a desired set operation on the result.

1   23.   The computer program device of Claim 12, further comprising means for
2   executing a horizontal to vertical operator against an output to transform the output to a
3   vertical format.

1   24.   A method for extracting data from at least one vertical table in a database,
2   comprising the acts of:
3   defining an enablement layer including at least a horizontal view representative
4   of the vertical table; and
5   using the enablement layer, extracting data from the database based on an SQL
6   query without requiring a user to tailor the query to a vertical format.

1   25.   The method of Claim 24, wherein the act of extracting includes:
2   receiving at least one SQL query against the horizontal view;
3   transforming the query to render a transformed query; and
4   executing the transformed query against the vertical table to generate an output.

1   26.   The method of Claim 25, wherein the query is transformed using at least one
2   operator.

1   27.   The method of Claim 26, wherein the operator receives at least one vertical
2   table with an associated list of attribute names as input and outputs the logical horizontal table
3   having column labels equal to the attribute names.

1   28.   The method of Claim 27, wherein the operator is a v2h operator.

1   29.   The method of Claim 27, wherein the vertical table includes object
2   identifications with corresponding attribute names and attribute values, and the operator
3   executes a left outer join of a projection of distinct object identifiers of the vertical table with
4   a sequence of left outer joins of a set of projections of attribute values from the vertical table.

1   30.   The method of Claim 25, wherein the transforming act includes executing at
2   least one projection based on the vertical table.

1   31.   The method of Claim 25, wherein the transforming act includes executing at
2   least one selection from the vertical table.

1   32.   The method of Claim 25, wherein the transforming act includes executing at
2   least one table join using the vertical table.

1   33.   The method of Claim 25, wherein the transforming act includes executing at
2   least one aggregation.

1   34.   The method of Claim 25, wherein the transforming act includes executing an
2   operator on the vertical table to render a result and then undertaking a desired set operation on
3   the result.

1   35.   The method of Claim 25, further comprising executing a horizontal to vertical
2   operator against the output to transform the output to a vertical format.

1   36.   The system of Claim 1, wherein the transforming act undertaken by the
2   computer includes executing at least one cross product based on the vertical table.

1   37.   The system of Claim 1, wherein the transforming act undertaken by the
2   computer includes executing at least one union based on the vertical table.

1   38.   The system of Claim 1, wherein the transforming act undertaken by the
2   computer includes executing at least one intersection based on the vertical table.